

Alaska Department of Fish and Game
Division of Wildlife Conservation
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Brown Bear Line Transect Technique Development

Earl Becker

Research Performance Report
1 July 2000–30 June 2001
Federal Aid in Wildlife Restoration
Grant W-27-4, Study 4.3

This is a progress report on continuing research. Information may be refined at a later date.

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FEDERAL AID
ANNUAL RESEARCH PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

PROJECT TITLE: Brown Bear Line Transect Development

AUTHOR: Earl Becker

COOPERATORS: Pham X. Quang, University of Alaska; Becky Strauch, Alaska
Department of Fish and Game

GRANT AND SEGMENT NR.: W-27-4

PROJECT NR.: 4.30

SEGMENT PERIOD: 1 July 2000–30 June 2001

STATE: Alaska

WORK LOCATION: We conducted aerial line transect surveys throughout Game Management Unit 13E and the northern portions of Game Management Units 16A and B.

I. PROJECT OBJECTIVES

OBJECTIVE 1: Develop methods to speed up transect selection. Survey efficiency was greatly enhanced this year by switching from the military GPS units to commercial units. These commercial units have much newer and improved antennas that increase the speed to obtain a location fix. The federal government's recent decision to stop adding white noise to fixes from nonmilitary GPS units made this change possible. Becky Strauch rewrote some of her GIS programs to obtain more accurate distance calculations to marked locations off the transect line. In the future, this will reduce the amount of effort and time needed to check and edit data.

OBJECTIVE 2: Modify on-board computer programs to increase the flexibility and ease of use. We had hoped to rewrite these programs with some new GIS software. Unfortunately, the software vender has experienced delays in the development and sale of this software. We were unable to accomplish this goal and used last year's data collection programs.

OBJECTIVE 3: Refine the selection and measurement of covariates that are considered for use in the line transect model. This job was completed last year.

OBJECTIVE 4: Test the variability of the GPS units and the pilot/observer team to accurately mark known locations. We collected data on the new commercial GPS units

we purchased. The results were very promising. The difference between the aerially marked location and the target ranged from 0.25 to 35 m. Half of the locations were within 10 m. of the target and 80% were within 20 m. of the target.

OBJECTIVE 5: Obtain an estimate of brown bear population size in the selected study area.

Editing of this massive electronic data has been completed for the Lake Clark data set; however, additional programming work needs to be done in order to adjust the population estimate for bears remaining in their dens at the start of the project.

OBJECTIVE 6: Preparation of reports and publications. I wrote Federal Aid performance reports for project 4.30 in 2000.

II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN THIS PERIOD

JOB 1: This was completed in last year's work segment.

JOB2: We had hoped to rewrite these programs with some new GIS software. Unfortunately, the software vender has experienced delays in the development and sale of this software. This necessitated the use of last year's programs to collect data.

JOB 3: This job was completed last year.

JOB 4: We collected data on the new commercial GPS units we purchased. The results were very promising. The difference between the aerially marked location and the target ranged from 0.25 to 35 m. Half of the locations were within 10 m. of the target and 80% were within 20 m. of the target. Our standard procedure for marking bear is to over-fly the bear parallel to the transect; 100% of the marked locations were within 6 m. of a parallel line centered on the target location.

JOB 5: Editing of this massive electronic data has been completed for the Lake Clark data set; however, additional programming work needs to be done in order to adjust the population estimate for bears remaining in their dens at the start of the project. Using 5 Super Cub airplanes, we found 83 black and 52 brown bear groups along 591 35-km long transects.

JOB 6: I wrote Federal Aid performance reports for project 4.30 in 2001.

III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD

I participated in a line-transect brown bear survey in the southern portion of GMU 26B.

IV. RECOMMENDATIONS FOR THIS PROJECT

I recommend that we explore new computer technology and software that would ease data collection and editing requirements. Currently these requirements impose a big delay preparing population estimates.

For reporting on this project, the job statements should reflect more closely actual activities used to accomplish objectives. The original Study Plan used repetitive language that blurred objectives with jobs. The plans should be rewritten to achieve precise reporting that clearly separates objectives and activities.

V. PUBLICATIONS

I wrote Federal Aid performance reports for project 4.30 in 2001.

VI. FEDERAL AID TOTAL PROJECT COSTS FOR THIS SEGMENT PERIOD

\$60,000.00

VII. PREPARED BY:

Earl Becker
Biometrician III

APPROVED BY:

Steven R Peterson, Senior Staff Biologist
Division of Wildlife Conservation

SUBMITTED BY:

Don Spalinger
Research Coordinator

Wayne L Regelin, Director
Division of Wildlife Conservation

APPROVAL DATE: _____